Iwao HINO* and Ken KATUMOTO*: **Notes on Bambusicolous Fungi (1)**

日野 巖*・勝本 謙*: 竹類寄生菌論考 (1)

The writers have long taken keen interest in the bambusicolous fungi, and principally investigated into Japanese materials. They many times described bambusicolous fungi in considerable numbers, as well as their morphological features and new genera hitherto unknown. The writers here wish to describe on the results obtained by the reexamination of some species of bambusicolous fungi, together with new observation or new records obtained by their further studies in this line.

1. **Amphisphaeria phyllostachydis** Hara The pseudothecia are gregarious on the culms, subepidermal at first, then erumpent and almost superficial, remaining merely the basal portion in the substratum, conical in shape, glabrous, with papillate ostioles at the apex, 350–700 μ in diameter, and 350–450 μ in height. The peridium is carbonaceous, blackish in the outer portion, brownish or more paler in the inner and basal portion, pseudoparenchymatous, about 50 μ in thickness, and composed of the polyhedral cells which are isometric and 4–6 μ in diameter. The asci are paralleled at the basal portion of the peridium, clavate, bitunicate, with short stipes, contain eight ascospores, and are 97–120× 39–45 μ. The paraphysoids are numerous, filiform, simple, hyaline, and later conglomerate. The ascospores are biseriate in the asci, biconical or fusiform, papillate-form at both ends, 1-septate at middle portion, constricted at septum, brownish or castaneous, with large guttations, and 39–49×16–23 μ.

The ascospores of this fungus were described by K. Hara to be surrounded by mucous sheath, and later illustrated by the same author to possess sometimes two more septa at both apical portion. Though the writers were unable to examine the type specimen of this species, they made careful examination on the specimen which was left in Hara's herbarium and on another specimen in the writers' recent collection. The mucous sheath described by Hara was unable to be found by the writers because of the agedness of the specimens. As for the septation of ascospores they observed that almost all ascospores were 3-septated as demonstrated by Hara. The number of septation in ascospore,

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however, is merely one at the middle portion, and the septum-like membrane at both apical portion may be the so-called "pseudosepta". The preudosepta are not true septa but merely inner membrane which is rather thickened and adjoining to the indide of epispore. The membrane is detauchable from the epispore at the apical portion of ascospore and somewhat truncate, and consequently mistaken as a septum of ascospore.

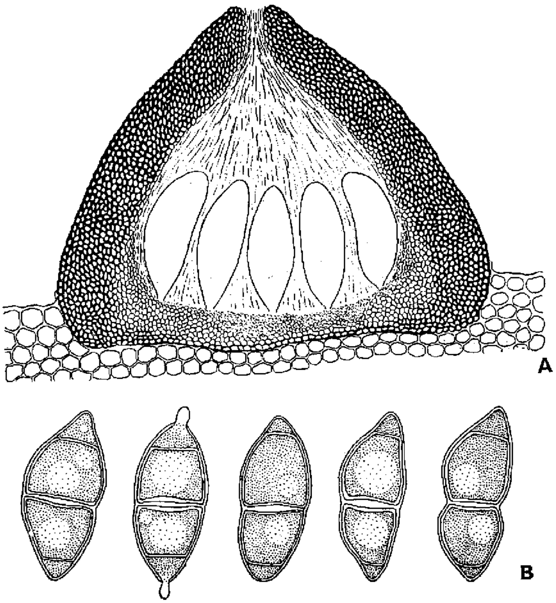

Fig. 1. *Caryospora phyllostachydis* pseudothecium. ×100 and ascospores. ×500.

The bitunicate asci and the papillate ostioles of peridia show the systematic position of the present fungus to be put in the family Pleosporaceae of Pseudosphaeriales. The fungus belongs to the genus *Caryospora* de Not. in this family in respect of the characteristics of the pseudothecia and the large brownish ascospores which possess distinct pseudosepta.

Caryospora phyllostachydis (Hara) Hino et Katumoto, comb. nov.

Amphisphaeria phyllostachydis Hara, Journ. Pl. Dis. Pests, **5**: 350, 1918; List. Jap. Fung.: 17, 1954; Trans. Myc. Soc. Jap., **1**(5): 6, 1957——Hino et Katumoto, Bull. Fac. Agr. Yamaguti Univ., **9**: 894, 1958——Hino, Icon. Fung. Bamb. Jap.: 152, 1961.

Hab. on the dead culms of *Phyllostachys bambusoides* Sieb. et Zucc. Simizu, Prov. Suruga (Apr. 15, 1924. K. Hara-Herb. Nat. Sci. Mus. Tôkyô, No. 209395), Simonoseki, Prov. Nagato (Aug. 6, 1964. K. Katumoto).

2. **Guignardia bambusae** Miyake et Hara The perithecia are scattered in the large lesion of the leaves, solitary, immersed, subglobose, and 100–150 μ in diameter. The peridium is membraneous, pseudoparenchymatous, 8–10 μ in

thickness, and composed of the flattened cells which are somewhat lenticular and 10–15×2–3 μ. At the apical portion the peridium is more thicker than the side or basal portion and composed of the cells which are polyhedral, isometric and 7–10 μ in diameter. The asci are club-shaped, unitunicate, diverging from the basal portion of the peridium and 65–91×16–22 μ. The apical portion of the asci contains amyloid thin apparatus which is slightly stained bluish by iodine. The paraphyses are conglomerate and seem to be merely slimy mass in matured condition. The ascospores are biserate in the asci, fusoid or oblongate fusoid, 1-septate at a short distance from the proximal end, not or slightly constricted at the septum, hyaline, with guttations, and 23–29 × 10–13 μ.

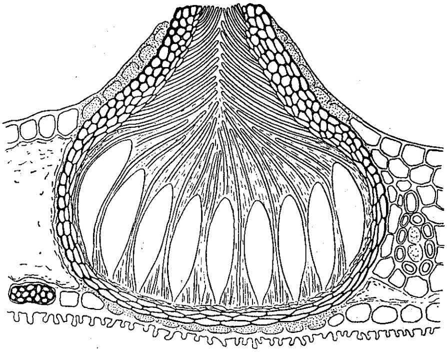

Fig. 2. *Pseudomassaria bambusae* perithecium. ×300.

The present fungus is to belong to the genus *Pseudomassaria* Jacz. in respects of the structure of peridium, unitunicate asci which contain amyloid apical apparatus and the septation of ascospores.

Pseudomassaria bambusae (Miyake et Hara) Hino et Katumoto, comb. nov.

Guignardia bambusae Miyake et Hara, Bot. Mag., Tokyo, **24**: 338, 1910—Saccardo, Syll. Fung., **22**: 76, 1913—Hara, Handb. Dendropath.: 359, 1927; List Jap. Fung.: 141, 1954; Trans. Myc. Soc. Jap., **1** (5): 6, 1957—Hino et Katumoto, Bull. Fac. Agr. Yamaguti Univ., **9**: 900, 1958—Hino, Icon. Fung. Bamb. Jap.: 155, 1961.

Mycosphaerella shibataeae Miyake et Hara apud Hara, Spec. Dendropath.: 103, 1923; Handb. Dendropath.: 359, 1927.

Sphaerella bambusae (Miyake et Hara) Saccardo, Syll. Fung., **24**: 867, 1928.

Hab. on the living leaves of *Shibataea kumasaca* Makino. Komaba, Tôkyô, Prov. Musasi (Nov., 1908. K. Hara-Type in Herb. Nat. Sci. Mus. Tôkyô, No. 209960), Simonoseki, Prov. Nagato (May 21, 1958. I. Hino), Hagi Prov. Nagato (Aug. 5, 1964. I. Hino).

3. **Mycosphaerella inaequalis** Hino et Katumoto The perithecia are

scattered on the smaller elliptic or oblongate lesions in the leaves, solitary, subglobose, and 150-200 μ in diameter. The peridium is membraneous, pseudoparenchymatous, 8-10 μ in thickness, more thickened at the apical portion, and composed of the polyhedral cells which are isometric and 4-7 μ in diameter. The inner surface of the peridium is composed of the cells which are subhyaline, flattened and 5-12 × 2-3 μ. The asci are club-shaped, unitunicate, diverging from the basal portion of peridium, and 78-98 × 16-21 μ. The apical portion of the asci contains amyloid thin apparatus which is slightly stained bluish by iodine. The paraphyses are conglomerate and seem to be merely slimy mass in matured condition. The ascospores are biseriate or sometimes irregularly arranged in the asci, oblongate or obtongate-fusoid, 1-septate at a short distance from the proximal end, not or slightly constricted at the septum, hyaline, and 23.5-26 × 7.8-10 μ.

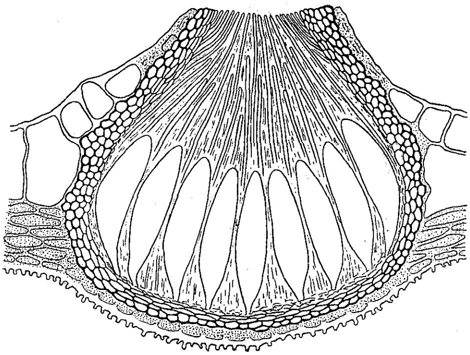

Fig. 3. *Pseudomassaria inaequalis* perithecium. ×260.

The present fungus also belongs to the genus *Pseudomassaria* Jacz., and seems to be highly similar to *Pseudomassaria bambusae*. The former, however, forms small oblongate lesions on the leaves of *Sasa borealis* var. *tyugokensis*, while the latter does large lesions which spreads from the apical portion of the leaves of *Shibataea kumasasa*. The structure of peridium and the form of ascospores also show distinct difference between these two species of fungi.

Pseudomassaria inaequalis (Hino et Katumoto) Hino et Katumoto, comb. nov.

Mycosphaerella inaequalis Hino et Katumoto, Bull. Fac. Agr. Yamaguti Univ., **8**: 657, 1957—Hino, Icon. Fung. Bamb. Jap.: 157, 1961.

Hab. on the living leaves of *Sasa borealis* var. *tyugokensis* Muroi. Mt. Tokusagamine, Atô-tyô, Prov. Nagato (Aug. 26, 1956. K. Katumoto-Type in Herb. FAUY).

4. **Didymosphaeria phyllostachydis** Hino et Katumoto The writers described several species of the genus *Didymosphaeria* from Japan in their mono-

graphic studies on bambusicolous fungi. One of these fungi, *D. phyllostachydis*, has the unitunicate asci, and is to be included into the genus *Roussoella* Sacc. together with *D. striatula* Penz. et Sacc. var. *minuta* Hino et Katumoto.

Roussoella hystericoides (Ces.) Höhn. var. **minuta** (Hino et Katumoto) Hino et Katumoto, comb. nov.

Didymosphaeria striatula Penz. et Sacc. var. *minuta* Hino et Katumoto, Bull. Fac. Agr. Yamaguti Univ., **6**: 61, 1955—Hino, Icon. Fung. Bamb. Jap.: 172, 1961.

Didymosphaeria striatula (non Penz. et Sacc.), Hara, Fungi, **1**: 106, 1931; List Jap. Fung.: 108, 1954—Hino et Katumoto, Bull. Fac. Agr. Yamaguti Univ., **5**: 228, 1954.

Hab. on the dead culms of *Phyllostachys bambusoides* Sieb. et Zucc. Yatomimura, Prov. Nagato (May 4, 1952. I. Hino), Simonoseki, Prov. Nagato (Oct. 25, 1953. K. Katumoto-Type in Herb. FAUY), Abu-tyô, Prov. Nagato (Mar. 27, 1956. N. Miake), Kôbe, Prov. Settu (Mar. 12, 1958. H. Muroi); on the dead culms of *Phyllostachys bambusoides* var. *marliacea* f. *katasibo* Muroi. Tatuno, Prov. Harima (Jan. 27, 1957. H. Muroi); on the dead culms of *Sasa borealis* var. *tyugokensis* Muroi. Abu-tyô, Prov. Nagato (Mar. 27, 1956. N. Miake); on the dead culms of *Pleioblastus simoni* Nakai. Gotenba, Prov. Suruga (Mar. 30, 1960. H. Muroi).

Roussoella phyllostachydis (Hino et Katumoto) Hino et Katumoto, comb. nov.

Didymosphaeria phyllostachydis Hino et Katumoto, Bull. Fac. Agr. Yamaguti Univ., **7**: 272, 1956—Hino, Icon. Fung. Bamb. Jap.: 169, 1961.

Hab. on the dead clums of *Phyllostachys bambusoides* Sieb. et Zucc. Abu-tyô, Prov. Nagato (Mar. 27, 1956. N. Miake-Type in Herb. FAUY).

5. **Didymosphaeria japonica** Hino et Katumoto and its allied species

Didymosphaeria japonica Hino et Katum., *D. macrospora* Hino et Katum. and *D. tosaensis* Hino et Katum. are remarkably characteristic in general morphology. The asci are bitunicate and clavate, and the ascospores are large, frequently inaequilateral, unequally divided into two cells of which the proximal one is about a half to two-third of the distal one, fusoid, and attenuate to both ends. The stromata are subepidermal, embedded in the epidermal cells or a few rows of the parenchymatous cells under the epidermis, and form a blackish clypeus. The pseudothecia are gregarious in the stromata, and flattened at the bottom. The peridium is subcoriaceous or membraneous, pseudoparenchymatous and opening with ostiole at the apical portion through the stroma.

These three species of fungi apparently belong to the same genus of the family Pleosporaceae in Pseudosphaeriales. Though they were formerly included in the genus *Didymosphaeria* Fuckel, they differ from the fungi of the latter genus in respect to the morphology of stromata and ascospores. In the genus *Didymosphaeria*, the pseudothecia are solitary or rarely conglobate, and never embedded into the evident stroma, though they frequently form blackish clypeus at the upper portion, and the ascospores are oblong to fusoid, 1-septate at the middle portion, and never inaequilateral. They seem to be somewhat similar to the fungi of the genus *Tomasellia* Massal., but differ from the fungi of the latter genus in respect to the morphology of ascospores. They never belong to any already known genus in the family Pleosporaceae, but may be preffered to establish a new one.

Roussoellopsis Hino et Katumoto, gen. nov.

Stromatibus immersis, gregariis, subcoriaceis, fuligineis, pseudoparenchymaticis, superne clypeatis; pseudotheciis immersis in stromate, plane globosis vel subconoideis, subcoriaceis vel membranaceis, pseudoparenchymaticis, apice ostiolatis, ex cellulis polyhedricis et lenticularibus compositis; ascis basilaribus, bitunicatis, clavatis vel cylindro-clavatis, apice rotundatis et crassiparietalibus, stipitatis; paraphysoideis numerosis, filiformibus, simplicibus, hyalinis; ascosporidiis fusoideis, inaequaliter 2-locularibus, ad septum constrictis, apice utrinque attenuatis et obtusis, plerumque inaequilateralibus, brunneis, laevibus, verruculosis vel striatis, guttatis.

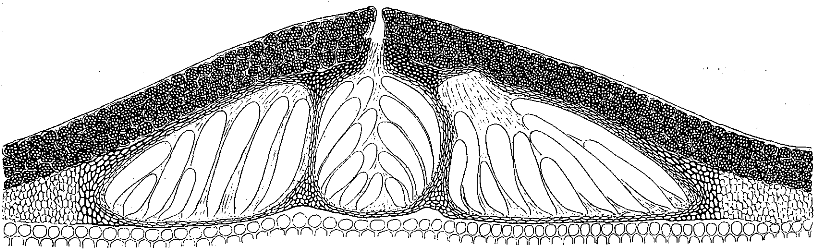

Fig. 4. *Roussoellopsis japonica*, stroma and pseudothecia. ×70.

Typus: *Roussoellopsis japonica* Hino et Katumoto

Roussoellopsis japonica (Hino et Katumoto) Hino et Katumoto, comb. nov.

Didymosphaeria japonica Hino et Katumoto, Bull. Fac. Agr. Yamaguti

Univ., **5**: 229, 1954—Hino, Icon. Fung. Bamb. Jap.: 167, 1961.

Hab. on the dead culms of *Phyllostachys bambusoides* Sieb. et Zucc. Simonoseki, Prov. Nagato (May 16, 1954. K. Katumoto-Type in Herb. FAUY).

Roussoellopsis macrospora (Hino et Katumoto) Hino et Katumoto, comb. nov.

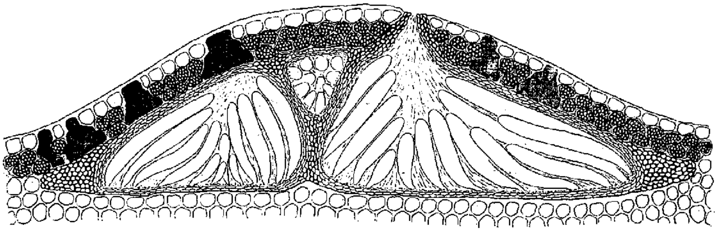

Fig. 5. *Roussoellopsis tosaensis*, stroma and pseudothecia. ×100.

Didymosphaeria macrospora Hino et Katumoto, Bull. Fac. Agr. Yamaguti Univ., **10**: 1193, 1959—Hino, Icon. Fung. Bamb. Jap.: 168, 1961.

Hab. on the dead culms of *Phyllostachys bambusoides* Sieb. et Zucc. Mt. Hôman, Dazaihu-tyô, Prov. Tikugo (Sept. 9, 1956. T. Hino-Type in Herb. FAUY).

Roussoellopsis tosaensis (Hino et Katumoto) Hino et Katumoto, comb. nov.

Didymosphaeria tosaensis Hino et Katumoto, Bull. Fac. Agr. Yamaguti Univ., **6**: 62, 1955—Hino, Icon. Fung. Bamb. Jap.: 173, 1961.

Hab. on the dead culms of *Shibataea kumasaca* Makino. Kôti Prov. Tosa (May 15, 1955. I. Hino-Type in Herb. FAUY).

6. **Puccinia porteri** Hino et Katumoto This is a later homonym of *Puccinia porteri* Peck, and the writers wish to give a new name to this fungus.

Puccinia neoporteri Hino et Katumoto, nom. nov.

Puccinia porteri (non Peck, 1874), Hino et Katumoto, Bull. Fac. Agr. Yamaguti Univ., **11**: 33, 1960.

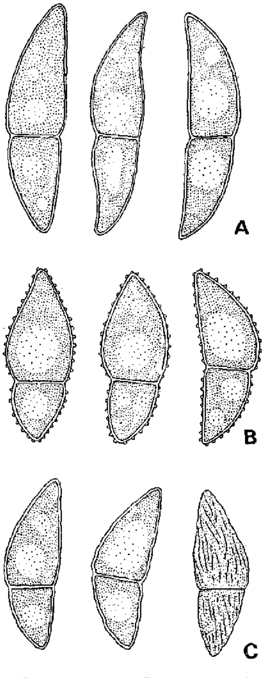

Fig. 6. A. *Roussoellopsis japonica*. B. *R. macrospora*. C. *R. tosaensis*, ascospores × 550.

Hab. on the living leaves of a certain Bamboo. Nanking, China (1926. R.H. Porter-Type in Herb. Arthur, F. 15144).

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竹類寄生菌には形態的に特異なものが多くみられ，分類上難解なものが多数存在することはたびたび述べてきたが，今までに記載された竹類寄生菌中には再検討を要するものが少なからずみられるので，これらの菌について詳細な研究を行ない，新たな知見を記載した。

1. *Amphisphaeria phyllostachydis* Hara.　子嚢は bitunicate であり，褐色大型の子嚢胞子は中央に1隔膜を有し，さらに両端に近くそれぞれ1個の偽隔膜がみられる。この子嚢および子嚢胞子の性質ならびに子嚢殻の形態から，この菌を *Caryospora phyllostachydis* (Hara) Hino et Katumoto, n. comb. とした。

2. *Guignardia bambusae* Miyake et Hara.　子嚢は unitunicate で頂部に沃度で微かに青変する薄い膜状の物質を含み，子嚢胞子は基部に近く1隔膜を生じて不等の2細胞に分たれる。これらの性質からこの菌を *Pseudomassaria bambusae* (Miyake et Hara) Hino et Katumoto, n. comb. とした。

3. *Mycosphaerella inaequalis* Hino et Katumoto.　前者によく似た形態を有するが，寄生植物，病斑の形状，子嚢殻壁の構造および子嚢胞子の形態などから区別されるので，*Pseudomassaria inaequalis* (Hino et Katumoto) Hino et Katumoto, n. comb. とした。

4. *Didymosphaeria phyllostachydis* Hino et Katumoto.　子嚢は unitunicate であり，*D. striatula* var. *minuta* Hino et Katumoto の母種の属する *Roussoella* 属に含まれると考えられるので，それぞれ，*Roussoella phyllostachydis* (Hino et Katumoto) Hino et Katumoto, n. comb. および *R. hysterioides* var. *minuta* (Hino et Katumoto) Hino et Katumoto n. comb. とした。

5. *Didymosphaeria japonica* Hino et Katumoto, *D. macrospora* Hino et Katum. および *D. tosaensis* Hino et Katum.　これらの菌の子実体は *Roussoella* 属のものに類似しているが，その子嚢は bitunicate で Pleosporaceae に属するものであり，unitunicate の子嚢を有する *Roussoella* 属とは明らかに区別される。また子嚢殻は子座中に集合して生じ，表面に clypeus を有し，子嚢胞子は大形で褐色を帯び中央よりやや基部寄りに1隔膜を生じて不等2細胞となり，両端に向って漸細，しばしば1側においてやや扁平となるなど3者共通の性質を有し，Pleosporaceae 中の *Didymosphaeria* 属や *Tomasellia* 属からも区別されるので，新属 *Roussoellopsis* 属を樹ててこの3菌を所属させ，それぞれ *Roussoellopsis japonica* (Hino et Katumoto) Hino et Katumoto, n. comb., *R. macrospora* (Hino et Katumoto) Hino et Katumoto, n. comb. および *R. tosaensis* (Hino et Katumoto) Hino et Katumoto, n. comb.

とした。

6. *Puccinia porteri* Hino et Katumoto. 筆者等は1960年にこの菌を記載したが，概に Peck により1874年に *Arabis* 属植物に寄生する銹菌に対してこの名が与えられていた。*Puccinia porteri* Peck は現在 *P. thlaspeos* Schub. の異名として取扱かわれているが，筆者等の学名は later homonym であり，無効名となるので，新たに *Puccinia neoporteri* Hino et Katumoto と命名した。

○アカショウマの紅花品（檜山庫三）Kozo HIYAMA: A new form of *Astilbe Thunbergii*

アカショウマで花の淡紅色のものがあって，1963年の夏，東京都八王寺市梅ノ木平の奥の中沢で採集したが，この淡紅花品は近くの農林省浅川実験林内にもあると，同所の小林義雄氏から知らせて下さった。花序は美しいもので，園芸種のスパイレアにこのような花色のものがある。なお，アカショウマには花序が瘦せて貧弱なものとトリアシショウマのように豊満なものとがあるが，前者では花が雌性化の傾向にある。

Astilbe Thunbergii (Sieb. & Zucc.) Miq. forma **rosea** Hiyama, nov. f.

Inflorescentia rosea pulchella: sepala, petala, stamina et stigmata omnino rosea. Cetera ut in typo.

Nom. Jap. Usubeni-akashōma.

Hab. near Umenokidaira, Hachiōji, Prov. Musashi (K. Hiyama, June 25, 1963—type in Makino Herbarium).

○シロバナレブンソウ（大場達之）Tatsuyuki OHBA: A white-flowered form of *Oxytropis megalantha*

北見礼文島の桃岩は海抜250m許であるが，多くの寒地植物を産することで著名で，北海道指定の天然記念物ともなっている。ここでレブンソウの白花品を得たので記録しておきたい。尚レブンソウの常品の花色は従来「青紫色」として表現されているが，実際は濃紅紫色で，開花後日を経れば紫色が強く感ぜられる様になるが青色を帯びることはない。又玉川大百科辞典植物篇にレブンソウのカラー写真があるが，これはレブンソウではなく，礼文島でレブンソウと混じて崖地や崩礫地に多いチシマゲンゲである。

Oxytropis megalantha H. Boiss. f. **albiflora** Ohba, forma nova.

Flores albi.

Nom. Jap. Shirobana-rebunsô.

Hab. Hokkaido. Prov. Kitami: Ins. Rebun (T. Ohba, Aug. 9, 1956—typus in SAP).